

Hypothesis Concerning the Mystery Surrounding the Radioactivity of Technitium

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Introduction

The property of instability of the technitium nucleus; currently treated by the physics community as an open question given technitium's placement well outside of the section of the periodic table in which radioactive elements are traditionally found; is, in fact, readily explained.

Abstract

As per previously published works by this author (ibid.,) the strong nuclear force manifests itself not merely in bonds between quarks, but in bonds formed by streaming gluons flowing between proximal protons. These streams interact with one another and give rise to and sustain the energy of the quark systems of neutrons, which unlike the quark systems of protons, require continual energetic contributions in order to sustain the particles. In this sense, neutrons may be considered a high-endurance virtual particle. They are only stable in the context of the nucleus of matter and require gluon streams to be sustained in much the same way that electrons require gravity to be sustained.

That said, protons are strongly bound to one another through the strong force. We can envision these gluon streams as vectors which directly connect all neighboring protons to one another. As neutrons absorb some of the energy from these streams and can create a physical buffer between protons and other protons, in radioactive elements, it is a specific proton which is unstable rather than the whole nucleus. That proton can always be identified according to its position relative to the other protons. When large numbers of extraneous neutrons are clustered in one area, not only is their bond to protons weakened, but more importantly, a proton mediated by a greater than usual number of neutrons would be less strongly bound through the strong force to their neighbors.

As has been described in previous publications, it is the electroweak force which generates decay events. Clockwork-like alignments of electrons generate Coulomb Force Lines of sufficient strength to pluck protons from the nucleus, liberating one or two neutrons along with liberated protons. In the case of technitium, the fact that one of its 43 protons is more distant from its neighbors than the mean distance results in that proton's bond being comparatively weak.

It can be deduced fairly readily that it is always going to be this proton which is plucked from the nucleus during a decay event and not a random proton.

Conclusion

Although of little practical significance, experimental confirmation of this hypothesis may provide support for this author's other hypotheses concerning nuclear decay and the relationship between gluon streams and quark formation and excitation.